VISUAL DESIGN THINKING IN THE SOLUTION PROCESS OF ENVIRONMENTAL PROBLEMS

Dr. Öğr. Üyesi Sadi Kerim DÜNDAR*

ABSTRACT

For art and artist, protecting the sustainable balance of the environment is a binding duty. Moreover, there is a strong relationship between the solution process of environmental problems and visual design as an art form. In the solution of environmental problems, leading the public to have awareness about the subject, to gain responsibility and to develop a behavior is the indispensable requirement. The necessary information to be served into public must be built with a design language, which is emphatic, intense, thought-provoking, semantically effective, designed to be functional, and a result of a strategy. At this point, a visual designer, whose main aim is providing communication, should be involved in the process. The technology of visual design today smooths the path for 'information architecture' and 'interactivity' concepts and causes a change in the processes of conveying information, learning and education. In the present day's excessive information flow, visual designers have to clarify and simplify the presentation of the subjects and the problems, to build a bridge on the communicational gap between the public and the scientists.

Keywords: Visual Design Thinking, Environmental Problems, Multidisciplinary and Interdisciplinary, Public Awareness

ÇEVRE SORUNLARININ ÇÖZÜM SÜRECİ İÇİN GÖRSEL TASARIM DÜŞÜNCESİ

ÖZET

Doğa, sanatın ve tasarımın doğuşuna neden olan ilk ilhamı sağlamış olup, hala da bu katkıyı sunmaktadır. Bu yüzden, doğanın sürdürülebilir dengesini korumak sanatın ve tasarımın doğaya karşı bir vefa borcudur. Bir sanat formu olan görsel tasarım ile çevre sorunlarının çözüm süreci arasında sıkı bir ilişki vardır. Çevre sorunlarının çözümünde gerekli olan koşullardan birisi konuyla ilgili toplum bilincinin oluşturulmasıdır. Hedeflenen amaca ulaşabilmek için, toplumu bilinçlendirme, bireylere sorumluluk kazandırma ve davranışsal gelişim stratejileri uygulanmalıdır. Bu noktada, ana amacı iletişim sağlamak olan görsel tasarımcı devreye girmelidir. Görsel tasarımın günümüzdeki teknolojisi, 'bilgi mimarisi' ve 'etkileşim' kavramları ile bilgi aktarımı, eğitme ve öğrenme süreçlerinde köklü değişikliklere neden olmaktadır. Günümüzdeki aşırı bilgi akışında, görsel tasarımcının rolü, konuların ve sorunların sunumunu açık ve yalın bir üslup ile ifade ederek, bilim insanları ve toplum arasındaki iletişimsel uçurumun arasında köprüler inşa etmektir.

Anahtar Kelimeler: Görsel Tasarım Düşüncesi, Çevre Sorunları, Çokdisiplinli ve Disiplinlerarası, Toplumsal Farkındalık

* Üsküdar Üniversitesi, Çizgi Film ve Animasyon Bölümü. kerimdundar@gmail.com

1. Introduction

The oldest known artworks are the cave paintings which belongs to prehistoric people. And the oldest age of those artworks that discovered is far as 30.000 B.C. In those artworks, the pictured content was animal motifs and pictograms in general (DK, 2013). In this way, the human being had started to transform the gatherings of the continuous observation of nature into a communicational expression. Nature had provided the first inspiration that necessary for the birth of art and still offers this contribution. Along with history, nature is the primary inspiration source for mankind to produce art (Kagan, 2002). Therefore, protecting the sustainable balance of the environment is also a binding duty for art and artist. For an artist, protecting the environment is also protecting the art. Protecting the sustainable balance of the environment can only be achieved by multidisciplinary and interdisciplinary works (UN, 1992). In the present day's complex conditions, developing sustainable environment strategies requires a versatile and comprehensive consideration of the subject.

2. The Relationship Between Visual Design and Nature

There is a cordial relationship between the solution process of environmental problems and visual design as an art form. One of the indispensable requirements for solutions to environmental problems is developing public consciousness. To reach this aimed condition; awareness-raising, responsibility gaining and behavioral development strategies have to be applied on public (UN, 1992). On this way, the necessary information to be served into public must be built with a design language, which is emphatic, intense, thought-provoking, semantically effective, designed to be functional, and a result of a strategy. Furthermore, it has been understood that aesthetics and functionality are no longer in opposition to each other (Lengler & Moere, 2009). At this point, the visual designer, whose main aim is to provide communication, has to step in. The great necessity of an artist's / a designer's involvement in the multidisciplinary and interdisciplinary teamwork is realized after a long acculturation and consciousness period about environmental protection.

Image 1: An example of functional design by Saatchi & Saatchi, Copenhagen, Denmark. The determined solution can be defined as; the human being has to be warned continuously until they develop a reflexive behavior. And it is achieved with a visual design language, which is emphatic, intense, thought-provoking, semantically effective, designed to be functional and a result of a strategy.

3. The Point That Visual Design Reached Today

In the present day's information and space era, visual design is evolved by the rapidly developing technology. Its boundaries got widened and the impact was overgrown. With this new phase of visual design, 'information architecture' and 'interactivity' concepts have become current issues. Despite the long presence of 'information architecture' and 'interactivity' concepts since the early 1970s, nowadays level of technology can just provide the sufficient environment for their potential power to be able to come out. Therefore, those concepts have started to live in a golden age. The definition and methods of information transmission, learning and teaching processes are being changed rapidly and radically.

3.1. Information Architecture

Data are the new raw material of the new era. Today, infinite amounts of new information can be accessed in seconds and across large distances. However, raw data in themselves are of negligible value, they need to be filtered and evaluated to turn into valuable information (Rendgen, 2012). The huge amount of raw data of the civilized world is meld

in an unrelated, unorganized, uncontrolled and incoherent form. To generate a solution, 'information architecture' concept is defined to develop ways of clarifying complex relationships through structured design (Wurman, 2012). The accessibility that the Internet provides and the 'transparency movement' spreading across the globe together cause a huge data flood to be formed for sure. The opening of data, the deployment of tools and instruments to engage the public, collaboration among public organizations and between governments and the public are important drivers for open government. The authors review transparency-by-design concepts (Janssen, Matheus, Longo, & Weerakkody, 2017). This huge data flood greatly provides the necessary environment for information architecture to be functional (Rogers, 2012). And the level where the computer-aided visual design reached today, enables the construction of information architecture with the adequate simplification and clearness, even in this huge data flood.

3.2. Interactivity

Before the interactivity concept, the methods of information transmission are one-way and linear. With the interactivity concept, linear information transmission had become into a two-way, even multi-way information trade-off. In this multi-way information trade-off; one side is the human being who desires to have information or a service, and the other side is smart devices. Improving technology increases the quantity and the importance of the smart devices that integrated into human being's daily life simplifies their usage and makes the interactivity concept an important factor in life. Smart devices provide information transmission that restructured through users' choices in the first sight and also generates a database by gathering information about the users through their choices. The information transmission in interactivity is non-linear; changes its way and gets restructured through users' choices. One's choices may reflect his/her personality, characteristics, interests and likes in some way. With those decrypted personal hints, the interactivity concept may provide a specific information transmission that specially compiled for the user. At this point, emotional designs get involved in the process; obtain a suitable platform for the new instruments to be developed to allow more comprehensible and efficient ways of information transmission. The levels of success and efficiency in information trade-off are extremely related to the quality of the visual presentation of information or in other word the attributes of interfaces that meet the users (Stone, 2001).

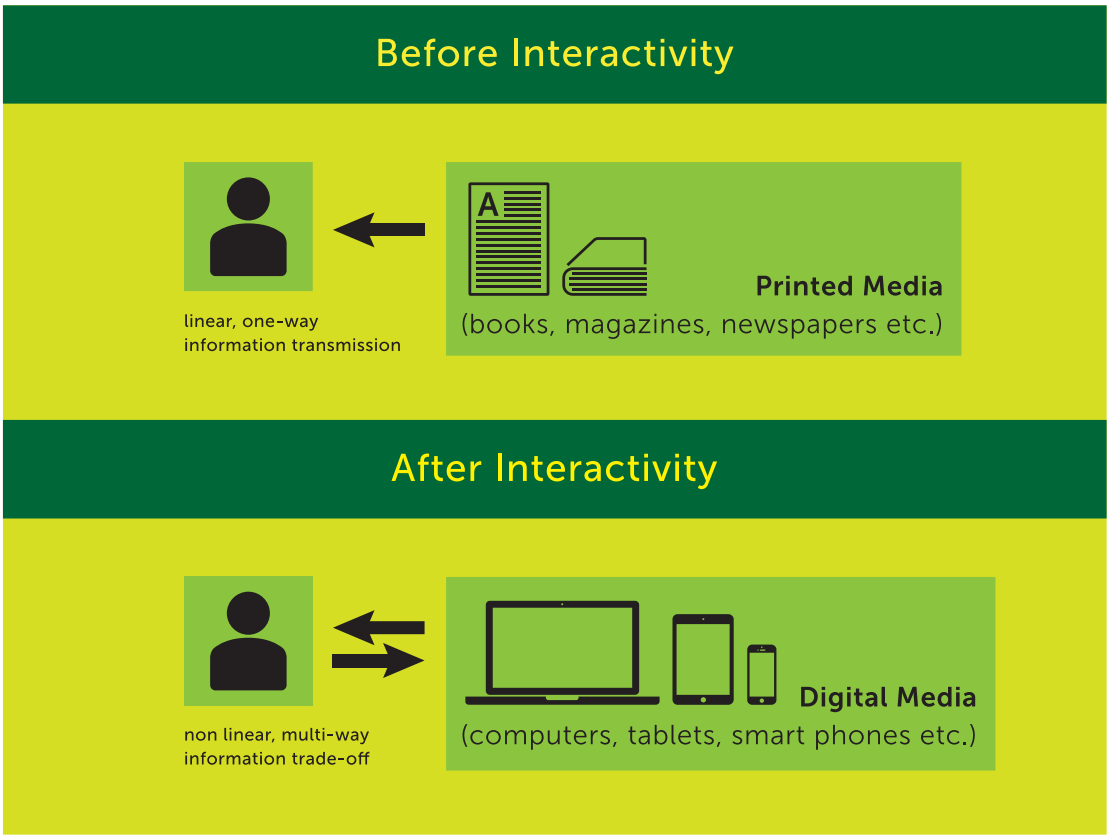

Image 2: Linear information transmission before the interactivity concept, and non-linear information trade-off after interactivity concept.

4. The Task of The Visual Designer

For institutions and other disciplines to benefit from the newly revealed usable powers of 'information architecture' and 'interactivity' concepts, multidisciplinary and interdisciplinary teamwork formed with a visual designer is essential (Pettersson, 2010). Visual designer has a key role for a true and appropriate use of these concepts. To appeal to the target audience, organizations have to reach them with an appropriate design. In the present day's excessive data flow, it is visual designers' fundamental duty to turn data into perceptible information, to clarify and simplify presentation of the subjects and the problems to be comprehensible, and to build a bridge on the communicational gap between the researchers - scientists and the public that desires to understand their findings. The visual designer also has to provide purposive communication between other disciplines in multidisciplinary and interdisciplinary teamwork (Ciuccarelli, 2012). In short, life is continuously being formed and getting more and more complex by the technology. In this new world, people will be more and more in need of designers caring hands to help and direct them (Heller & Womack, 2007).

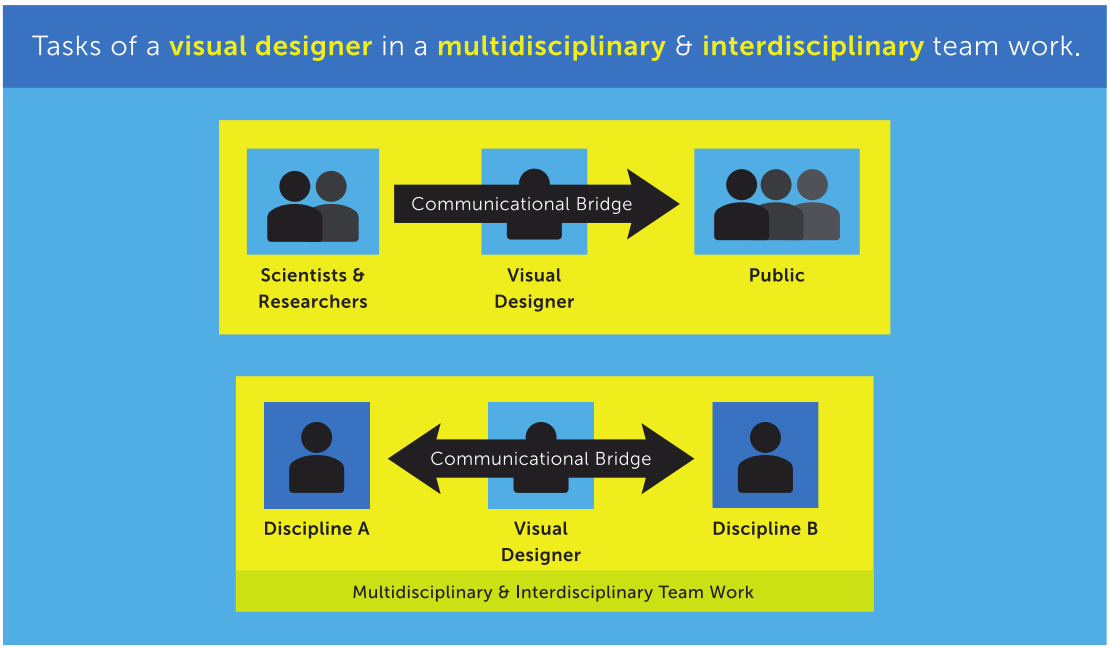

Image 3: Tasks of a visual designer.

5. Expected Future

With the present decade, the world came into a new era of technology, information, and space. In this new era, the speed of development, transition, and transformation is faster than ever in human history, and continuously increasing exponentially. This rapid transformation is perceived as a warning and interpreted as a sign of danger, by some theorists like Jean Baudrillard. The conditions of predicting the future are changed and got hard. The world has just taken a sudden step into the unknown future. The offerings of the technology are higher than the speed and the capacity of human's perception and the level of his/her toleration and regulation. Now, millions of people can be reached in seconds, miles of distances can be covered in seconds, millions of brains can be influenced by mobile and digital devices in seconds. Thence, the human being has enough power to give damage to the world and themselves directly and indirectly in seconds. The questions of how this new era will shape life and what kind of precautions have to be taken are the current topics that are being discussed now in today's symposiums. The contests that seek suggestions and solutions are being organized.

Gordon Earle Moore, the co-founder of Intel Corporation, stated an observation that accepted law with his name; Moore's law. According to this observation; the number of transistors – the level of capacity, speed and capability – in a single chip are doubling every two years. Chips are the fundamental building blocks of digital technology, and

with the consideration of this fact, it should be realized that Moore's law is directly reflecting the exponential increase in the level of technology (Mack, 2011). This unbounded improvement's negative effects on environment have already been visible. In recent years, the level of global climate change and carbon dioxide emission are rising dramatically in parallel to technological improvement (Schmidt & Sewerin, 2017). Besides, in those people whose get under control of technology instead of managing it, problems of miscommunication, behavioral disorders related to personal relations, the disappearance of some skills and becoming isolated have started to be seen. Those are the problems that have to be solved at the earliest convenience for sure.

6. Smart Strategies to Take Precautions

While the new services and products of the improving technology constitute a possible danger for environment and human life, using this power in the right way with smart strategies is also one of the opposite results that may be reachable. With such strategies that include smart uses of 'information architecture' and 'interactivity' concepts, the aim of awareness-raising, responsibility gaining and behavioral development on the public can be achieved. The new services and products, which the interactivity concept is actively used, have begun to be indispensable tools of daily life. Those services and products have already rapidly started to define new daily habits and behaviors in human life. This over effective trend and its mechanism of action should be used for the benefit of environment and human life before it's being late. Smart and interactive campaigns should be organized to lead people to adopt 'sustainable lifestyle' as a trend and a behavioral routine. The firms whose aim are earning money, have already begun to use the possibilities of this new interactive medium to the limit to increase sales and to built a brand awareness on people, without losing any time. It is mandatory for those foundations whose aim are protecting the environment and humanity, to start to build strategies on how to catch this new trend, without losing any more time. There is a chance to be smart from the beginning of a new age, and it is still not late.

7. Digitalization for Sustainability

The mediums of information transmission are digitalizing at breakneck speed. The number of digital service kiosks is increasing and their service area is enlarging.

Billboards are transforming to digital panels. Bills are noticed by e-mails. Digital versions of books are also getting publishing. Periodicals like newspapers and magazines have begun to leave their places to the digital versions that displayed in tablets. Newsweek Magazine as one of the world's leading news sources became a pioneer on digitalization trend and announced that it will stop publishing a printed edition. After publishing it's last printed issue on 31 December 2012, it continued to publish only on the digital platform. Digitalization of the printed publications lowers the paper and ink consumption and eliminates the transportation requirement. Next, to the protecting world's recourses, it also reduced the carbon dioxide emission. Millions of newspapers and magazines are publishing just to be readable only for a day or a week. Thousands of handouts and flyers are printing for people to glimpse and then throw to garbage. If those facts were considered, how a big gain the digitalization of those printed mediums will contribute to the environment and economy would be seen easily.

However, the digitalization process has also a disadvantage that giving damage to environment, waiting to be solved. The rapid improvement of technology is evolving the technological devices continuously and causing a growing electronic waste to appear. The developed countries, rather than recycling or properly destroying those e-wastes, prefer a cheap solution and throw them to several points of the world, initially in Africa (Grant & Oteng-Ababio, 2012). This fact is another important problem that has to be solved.

8. New Communication Tools

The 'information architecture' and 'interactivity' concepts, which the digitalization process intensively nourishes, reveals two new and effective tools also can be used for environment protection strategies. These tools are interactive infographics and interactive communication campaigns (Lilleker, 2015). As the interactivity techniques improve further and ways of building deep and emotional communication with people become clear, it is seen that more and more new communication devices will certainly come out.

8.1. Interactive Infographics

The first and simple uses of infographics as a method of classifying, simplifying and visualizing information, belongs to 18th century. Infographics are the preferred method in scientific areas for easy comprehension of complex information for a few centuries. The

new visualization techniques progressing together with technology now enables designers to achieve interactive infographics. Interactive infographics enhanced the mechanism of information transmission, learning, and teaching processes (Burmester, Mast, Tille, & Weber, 2010). This advancement in the process of information visualization, have led to radical changes in the news industry. News media is working to earn social trust by using this new technique and publishing news that derived from data and scientific results. The pioneers like New York Times, Washington Post and The Guardian have already created a new department in their structures for this new 'data reporting' issue (Giardina & Medina, 2013). The huge data flood that the world comes under excessively nourishes the 'data reporting' issue. Transforming the data stacks into easily understandable and useful information is a multidisciplinary and interdisciplinary work. At this point, to fill the newly occurred gaps, new job definitions like 'data mining' appeared (Ying, Ken, Hemeng, Yongping, & Fei, 2018). The demand for these new professions is based on the necessity of filtration and classification of the data stacks. The visual designer undertakes the visual construction of the filtered information with the use of new information visualization techniques (Lengler & Moere, 2009).

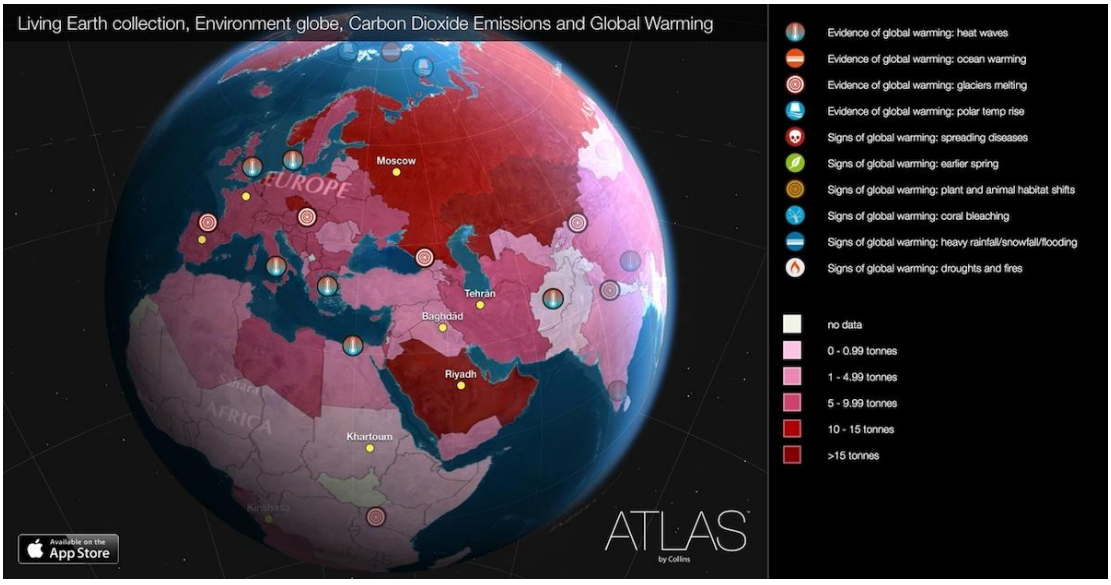

Image 4: A screen shot from the Atlas application designed by Collins for iPad, which is representing interactive infographics.

Interactive infographics' way of presenting and conveying information is friendlier to human's perception and comprehension mechanism in comparison to old methods. Interactive infographics are becoming an important tool for the results of scientists and researchers to be understandable by the public. Their usage for environmental awareness building would be over effective. The Guardian publishes interactive data reporting that

divided into main categories, under the 'interactive' section of their web site. Now, there are more than 200 interactive infographics published to support awareness-raising mission under 'environment' category.

8.2. Interactive Communication Campaigns

Printed mediums, which were the mass communication tools up until a short time ago, are now leaving their places to digital mediums. Digital mediums like mobile devices, wearable technologies, outdoor displays, information kiosks are filling people's perception area, and the number of digital interfaces that people face in daily life is increasing (Owen, 2017). Perceptive systems are improving; controlling and command receiving methods are becoming varied. As the augmented reality and the artificial intelligence studies progress, the boundaries of the applications produced with interaction design is almost defined only by imaginations. From now on, there are sensors around that perceiving people's movements and facial impressions. There is smart software online that interpreting and converting the sensors' data into commands, and even identifying people's intents and emotions from those data. Through progressing artificial intelligence, specific information content driven by people's selections and emotional states can be served. Three-dimensional technology has already been consumed, and hologram technology is standing in line. This radical transformation shows that communication campaigns have to be designed interactively. At this level, the methods for reaching people effectively for environmental awareness-raising is greatly advanced.

9. Conclusion

New digital communication tools and mediums like interactive infographics, interactive web sites and interactive indoor and outdoor installations are more and more increasing in number. And visual designers are in the management of those tools in general. To achieve visual communicational goals like environmental consciousness and awareness, sticking in the mind, giving start to a questioning process and leading to behavioral development, visual designers have to develop scientific, intuitive, emotional and strategic designs. For other institutions and disciplines to reach those well-qualified designs and benefit from them, the issue of collaboration with the visual designer increases in important and becomes a necessity. To help protect the environment, experts

of ecological scientific disciplines and visual designers must be able to think collectively, speak the same language, and develop projects together.

Bibliography

Burmester, M., Mast, M., Tille, R., & Weber, W., (2010). *How Users Perceive and Use Interactive Information Graphics: an Exploratory Study.* Stuttgart: Stuttgart Media University.

Ciuccarelli, P., (2012). Turning Visualisations Into Stories and "Big Pictures". *Information Graphics.* içinde Taschen.

DK., (2013). *Art That Changed the World: Transformative Art Movements and the Paintings That Inspired Them.* DK Adult.

Giardina, M., & Medina, P., (2013). Information Graphics Design Challenges and Workflow Management. *Online Journal of Communication and Media Technologies, 3*(1).

Grant, R., & Oteng-Ababio, M., (2012). Mapping the Invisible and Real "African" Economy: Urban E-Waste Circuitry. *Urban Geography*, 1-21.

Heller, S., & Womack, D., (2007). *Becoming A Digital Designer: A Guide to Careers in Web, Video, Game and Animation Design.* Willey.

Janssen, M., Matheus, R., Longo, J., & Weerakkody, V., (2017). Transparency-by-design as a foundation for open government. *Transforming Government: People, Process and Policy*, *11*(1), 2-8.

Kagan, S., (2002). *The Birth of Art: Journey In An Archeological Controversy.* Rotterdam: Erasmus Universiteit Rotterdam.

Lengler, R., & Moere, A. V., (2009). Guiding the Viewer's Imagination: How Visual Rhetorical Figures Create Meaning in Animated Infographics. *13th International Conference Information Visualisation.*

Lilleker, D. G., (2015). Interactivity and Branding: Public Political Communication as a Marketing Tool. *Journal of Political Marketing* , 111-128.

Mack, C. A., (2011). Fifty Years of Moore's Law. *IEEE Transactions on Semiconductor Manufacturing*, *24*(2), 202-207.

Owen, D., (2017). *New Media and Political Campaigns.* The Oxford Handbook of Political Communication.

Pettersson, R., (2010). Information Design – Principles and Guidelines. *Journal of Visual Literacy, 29*(2), 167-182.

Rendgen, S., (2012). *Information Graphics.* Taschen.

Rogers, S., (2012). How Data Changed Journalism. *Information Graphics.* içinde Taschen.

Schmidt, T. S., & Sewerin, S., (2017). Technology as a driver of climate and energy politics. *Nature Energy, 2*(6).

Stone, R. B., (2001). *Learning and the Importance of Interactivity Information Design becomes Interaction Design.* Ohio: The Ohio State University.

UN., (1992). *Agenda 21: United Nations Conference on Environment & Development.* Rio de Janerio: United Nations.

Wurman, S. R., (2012). How I Strive to Understand What It Is Like Not to Understand. *Information Graphics.* içinde Taschen.

Ying, C., Ken, C., Hemeng, S., Yongping, Z., & Fei, T., (2018). Data and knowledge mining with big data towards smart production. *Journal of Industrial Information Integration*, 1-13.